

Oocyte adenylyl cyclase contains Ni, yet the guanine nucleotide-dependent inhibition by progesterone is not sensitive to pertussis toxin

Birnbaumer, Lutz

Olate, Juan

Allende, Catherine C.

Allende, Jorge E.

Sekura, Ronald D.

Membranes were obtained from *Xenopus laevis* oocytes after removal of follicular cells by collagenase treatment. [³²P]ADP-ribosylation with pertussis toxin showed them to contain a single Mr = 40 000 substrate for this toxin that co-migrates on sodium dodecylsulfate-polyacrylamide gel electrophoresis with pure human erythrocyte Ni, the inhibitory regulatory component of adenylyl cyclase. [³²P]ADP-ribosylation of oocyte membranes with cholera toxin also showed presence of a single substrate but of Mr = 42 000. These results indicate, that the adenylyl cyclase system of oocytes, like that of somatic cells and unlike that of spermatozooids, contains the catalytic unit C and both of the known regulatory N components. The possible susceptibility to pertussis toxin of the guanine nucleotide-dependent inhibition of oocyte adenylyl cyclase by progesterone was investigated. This action of progesterone is mediated by a membrane bound receptor as opposed to a receptor of cytosolic or nuclear localiz